

Wide Area Multilateration (WAM)

Wide Area Multilateration (WAM) is a Next Generation Air Transportation System (NextGen) surveillance capability that enables air traffic controllers to track aircraft flying into and out of airports in mountainous areas with no radar coverage.

WAM provides surveillance through a network of small sensors deployed in remote areas. WAM sensors are inexpensive compared to multi-million dollar radar installations and much easier to install around airports in mountainous areas and even on mountain tops. A half-dozen sensors can cover a wide swath of previously unobserved airspace.



The sensors send out signals that interrogate aircraft transponders which, in turn, transmit a response. Computers analyze those responses and triangulate the precise location of aircraft. Aircraft position and identification information are then transmitted to air



traffic controllers, who use the surveillance data to safely separate aircraft.

Today, controllers are using WAM to control traffic in Juneau, Alaska, and at several airports in the mountainous regions of Colorado.

The rugged terrain that makes Colorado a popular ski destination in winter also makes it impossible to provide radar surveillance in certain areas. In these areas, inclement weather can reduce the pace of operations. Prior to WAM, arrivals and departures at remote Colorado airports could drop from 12 to 17 an hour to just four when bad weather set in.

In 2009, the FAA began using WAM to provide surveillance at four remote Colorado airports, enabling controllers to maintain 12 to 17 arrivals and departures per hour, even during reduced visibility. The system went operational at four more airports in 2013.

WAM is also enabling air traffic controllers to track aircraft along the difficult approach to Juneau. The mountainous terrain and the lack of radar meant that in the past, controllers had to keep aircraft separated by large margins. The airport's single runway sits at the end of the Gastineau Channel, surrounded by steep mountainous terrain.

The Juneau WAM system began initial operations in 2010, and is now tracking all transponder-equipped aircraft. Air traffic controllers are now able to safely decrease the separation to five nautical miles.

WAM technology is allowing more aircraft to fly into Juneau and it has given air traffic controllers the tools they need to safely and efficiently handle these flights.

WAM improves safety, efficiency and capacity. It saves time and money that would otherwise be lost due to flight delays and cancellations or diversions to other airports.

WAM surveillance also translates into more efficient flight paths, saving time and burning less fuel.

WAM is being used to provide near-term surveillance until Automatic Dependent Surveillance-Broadcast (ADS-B) becomes the primary means of surveillance in the National Airspace System. At that point, WAM will serve as a backup in case of a GPS outage. ADS-B ground stations are now deployed nationwide and aircraft operating in most controlled airspace must be equipped to broadcast position information to the ADS-B network by 2020.

